GEWEX Hydroclimate Panel (GHP)

Chairs: Jason Evans & Joan Cuxart

Short introductory report (highlights)

SSG-30 meeting, Washington DC (USA)
29 January- 1 February 2018

Current Status of GHP actions: RHP

Active:
HyMeX (2010-2020): Heading towards end, very productive
CCRN (2014-2018): Completing activities, continuation very likely

Initiating:
OzEWEX: Networking activities, re-thinking itself, a challenge for GHP
Baltic Earth: Smoothly advancing. Applies to "fully working" status
HyVic: Redefining itself, change of focus region and aims.

Prospective:
PannEx: WB and Sc&Imp plans completed. Applies for Initiating status.
AndEx: Chairs nominated, WB outlined, 1st workshop Oct-18.

"Floating around":
Western USA: talks going on for some years
Third-Pole Environment: RHP difficult, a CC is taking shape.
South-East Asia: Monsoon community seems to start organizing again.

Current Status of GHP actions: CC & Data Centers

Active CC:
INTENSE on subdaily prec.: Heading towards end, heritage in discussion
INARCH on mountain hydrology: progressing fine, it will ask for extension
Prec near 0ºC: towards end with good results, it should decide on cont.

Explorative CC:
Water management in models: goals set, implementation strategy pending
Mounterrain (Prec. in complex terrain): needs re-initialization.
Evapotranspiration determination: raises interest, WG in formation

Potential CC on "TPE Water Security":
The will to strengthen links between GEWEX and TPE has resulted in a potential CC in which TPE will explore if GEWEX ideas fit their interests, combining HR climate modelling, land-atm interaction and watershed hydrology. The idea is now in discussion within the TPE community.

Data Centers:
Global Runoff Data Centre (GRDC), HYDROLARE on lakes and reservoirs and Global Precipitation Climatology Center (GPCC) all progress well completing their DB, the latter now incorporating daily data.

GEWEX as transmitted to RHP/CCs

GEWEX mission and status: to observe, understand and model the hydrological cycle and energy fluxes in the earth's atmosphere and at the surface. It is in its third phase (2013-2020) taking advantage of mature modelling and observing systems.

GEWEX methodology

1) facilitate research into the global water cycle and interactions between the land and the atmosphere.
2) Identify gaps in knowledge
3) Fill those gaps through new studies, reviews of datasets, gatherings of experts, or other opportunities.

GEWEX Science Questions

Address the contributions that water and energy cycle science can make to society in four major areas:

1) Understanding precipitation variability
2) Changing water availability
3) Extreme events like drought and floods
4) Processes in water and energy cycles

GEWEX Imperatives

Focused on seven areas where GEWEX can best advance water and energy cycle science:

1) Data sets
2) Analysis
3) Processes
4) Modelling
5) Applications
6) Technology transfer
7) Capacity building

The three phases of an RHP

1) The ***prospective phase***, requires making a project plan that should include:

- A science plan
- A coordination mechanism
- An end date and an exit plan
- Adequate resources and personnel with actual/potential funding identified
- A mechanism for managing the generated datasets with participation of the community

2) The endorsement of the Project Plan by GHP and GEWEX's SSG leads to the ***Initiating phase***, a period when actual activity starts, interaction with other RHPs and Ccs is recommended. Annual report is required.

3) ***Full working RHP***. An annual report/update of the science plan is required and should:

- Demonstrate progress in the implementation of the initiating phase conditions
- Continue to meet all RHP requirements
- Have an up-to-date web presence
- Demonstrate contributions to the development/diagnosis of atmospheric-hydrologic-land surface models
- Participate in joint RHP studies and cross-cut activities
- Participate in Earth system activities with other Panels and groups outside GEWEX if feasible
- Share its new knowledge, experience and models through the publication of results, open meetings and relevant GHP meetings and activities

RHP focus questions

HyMeX

WG1: The water budget of the Mediterranean Sea
WG2: The continental hydrological cycle and related water resources
WG3: Heavy rainfall, flash floods and floods
WG4: Intense sea-atmosphere interactions
WG5: Societal and economic impacts

CCRN

Theme A: Observed Earth system change in cold regions
Theme B: Improved understanding and diagnosis of local scale change
Theme C: Upscaling for improved atmospheric modelling and river basin-scale prediction
Theme D: Analysis and prediction of regional and large-scale variability and change
Theme E: User community outreach and engagement

OzEWEX

- How can we better understand and predict precipitation variability and changes?
- How do changes in land surface and hydrology influence past and future changes in water availability and security?
- How does a warming world effect climate extremes, and how do land area processes contribute?
- How can understanding the effects and uncertainties of water and energy exchanges be improved and conveyed?

HyVic

Theme 1: Translational research interface with applications
Theme 2: Severe weather and water currents
Theme 3: Lake Victoria basin water budget
Theme 4: Climate variability and model development
Theme 5: Observation and hydroclimatological system

Baltic Earth

GC1: Salinity dynamics in the Baltic Sea
GC2: Land-Sea biogeochemical feedbacks
GC3: Natural hazards and extreme events
GC4: Understanding sea level dynamics
GC5: Understanding regional variability of water and energy exchanges

AndEx

- Hydroclimate of the Andes
- Climate and environmental change
- High impact events
- Cryosphere of the Andes
- Observations and data
- Science underpinning sustainable development

PannEx

1) Adaptation of agronomic activities to weather and climate extremes
2) Understanding air quality under different weather and climate conditions
3) Toward sustainable development
4) Water management, droughts and floods
5) Education, knowledge transfer and outreach

Some recommendations of the last GHP meeting

1) Increase networking activities in RHP/CC
2) Attract new generation of scientists (schools, workshops, special issues…)
3) RHP: must report better on how they address GEWEX's SQ, their own SQ and how this is made at the regional scale
4) Reflect further on how an RHP may upgrade/lose its status
5) Successful CCs: reflect further on the procedure to proceed to a prolongation
6) Trans-RHP gatherings, focussing on one or a few specific issues
7) Look for extra-funding for GHP activities
8) Strengthen the ties RHPs-CORDEX
9) Use UN-SDG as a framework to expose our activities outside the community
10) Promote activities that generate GEWEX-promoted peer-reviewed publications
11) Inventory extreme events in RHPs to foster public funding of activities

Items to be discussed at SSG regarding GHP

1) Endorsing fully working RHP status to Baltic Earth and Initiating status to PannEx
2) Discuss endorsement to AndEx, CC-TPE, …

3) RHP vs Networking activities: OzEWEX and others to come
4) Assessing the overall GHP mission
5) Identifying missing activities and links to be made/improved

6) Funding GHP meetings and workshops
7) Renewing the Panel